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ABSTRACT

Three papers by experts in the field of education for gifted children present interpretive comments on one of three research efforts (a School Staffing Survey) whose data were analytically studied in a companion volume (EC 040 763). The School Staffing Survey, which included a representative sample of elementary and secondary schools, gathered principals' responses to questionnaires on staffing patterns and instructional programs. Data analyzed concerned the actual state of education for the gifted in the schools surveyed. Louis Fliegler's commentary on the survey notes in summary that separate classes are the predominant instructional approach at the secondary level and that data indicate that American education is far from the goal of educating each child to his optimum level. Sol Tannenbaum comments on data showing failure of the schools to identify giftedness or program for it and recommends specific further statistical explorations of the available data. Virgil S. Ward's paper treats survey problems, research methodology, and analysis of data from specific items on the survey. (KW)

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Supplement on Data Interpretation of Findings

Operations Research, Inc. A LEASCO Company

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SILVER SPRING, MARYLAND

ANALYTICAL STUDIES OF SELECTED EDUCATIONAL DATA

Supplement A

CONSULTANT INTERPRETATION OF FINDINGS

30 April 1971

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PREFACE

The interpretive comments presented in this supplement have been prepared at the request of the U.S. Office of Education by acknowledged experts in the field of education for gifted and talented children. They are intended to illustrate possible interpretations, concentrating specifically on the complex School Staffing Survey data.

These comments represent the opinions of their authors and do not necessarily represent the views of either the U.S. Office of Education or Operations Research, Inc.

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COMMENTARY ON THE SCHOOL STAFFING SURVEY

A Report to Operations Research, Inc.
Peter M. Plantec, Project Coordinator

by

Louis Fliegler, Consultant
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IDENTIFICATION AND ENROLLMENT OF GIFTED CHILDREN

It is most disheartening that 57.5% of the schools were reported as having no gifted children. One can only assume that whatever measures were used for identification, a rather large segment of the gifted are not receiving adequate educational provisions. If one assumes that approximately 10%-25% of the public school population is gifted as assessed by a combination of criteria (e.g., intelligence, academic achievement, talent, and creativity, we are woefully lacking in identifying and providing for gifted children and youth. One possibility for the underestimation of the number of gifted children is implicit in the definition, which was quite narrow in scope. It is quite conceivable, though, that even if a wider base of an operational definition had been used, the estimate would still have remained approximately 3.2%. The understatement of gifted children in our public schools, combined with the fact that 57.5% of the schools report none, presents a dramatic picture of the public schools' inability to identify a large segment of the gifted school population.

It is rather interesting that large cities report greater percentages (in Table 3—3.4% elementary, 6.3% secondary) of gifted children enrolled that either the large city metropolitan surrounding areas (LCMS) or the "other" areas. One would have assumed that the LCMS would have indicated a larger percentage of gifted pupils, but such is not the case. It is possible, however, that principals in LCM areas, a category that includes suburban areas, selected a higher intelligence range than the principals in large cities (LC) and consequently reported a lower percentage gifted children. (The word "additional" in the definition becomes important.) It is also possible that the "other" areas followed a similar pattern, but from the data, this would be difficult to confirm.

Another interesting observation (from old Table 2) is that more gifted children are identified at the secondary than at the elementary school level. Assuming that the same framework for the definition was used throughout, the data appear unreasonable. If we conjecture that schools tend to <u>stultify giftedness</u>, then the secondary schools should have reported fewer gifted children. However, it is conceivable that this difference may be partly due to the structure of educational provisions (advanced placement) in the secondary school. This reviewer would tend to be inclined to accept this explanation for the variance.

EDUCATIONAL PROVISIONS

It is most interesting that a large number of principals who reported having gifted children in their schools accepted the essential need for separate classes on either a full or part-time basis. Although the figures vary among geographical areas, the most interesting fact is that the large city schools predominately provide for gifted children in separate classes, despite the advent of the ungraded plan. The high incidence of part-time separate classes for all geographical areas at the secondary school level would be expected because of departmentalization.

Rather bothersome in the data (Table 5) is the number of gifted children at the secondary school level in regular classes taught by regular teachers. One would have to assume that the children receiving this educational provision have comparable mental development to those taught in separate classes but that the scheduling pattern does not allow for part-time special classes.

The small percentage of gifted children who are being encouraged to take advantage of educational opportunities in another school is evidence that too many schools are parochial in nature (Table 5). It appears that broad educational planning across school district lines does not occur. The problem has been almost part of our educational heritage, but we cannot afford to support limited territorial imperatives as if they were sacred. If the school system is to become economical and efficient, as well as provide quality education for gifted children, regional planning is essential.

The educational picture becomes more bleak when one notes the number of gifted children who do not receive any specialized instruction (Table 6). This is especially true at the elementary school level. The rather large percentage (40.8%) of children in the "other" areas who receive no specialized instruction further substantiates the lack of regional planning.

PUPIL/STAFF RATIOS

Table 7 is probably the most difficult to interpret because establishment of guidelines for appropriate pupil/staff ratios has not been "a critical issue" in the area of the gifted as compared to other areas of special education. To assess a reasonable interpretation of the data, it is most advisable to compare Table 7 with Table 5. What is most striking immediately is the ratio of gifted children receiving special instruction from regular class teachers across both the elementary and secondary school levels. Whether one wishes to question the quality of instruction is somewhat arbitrary. The fact is that regular class teachers do attempt to meet some of the needs of some gifted children.

SUMMARY

Because the definition is so restrictive and was probably subject to misinterpretation by the school principals, formulation of any definitive conclusions from this phase of the School Staffing Survey would be hazardous at best. Despite this drawback, some inferences that take these difficulties into account may be drawn from the survey:

a. The total of 57.5% of U. S. school principals who reported no gifted children, the underestimations of the number of gifted children identified, and the number of gifted children who do not receive any specialized instruction suggest that we are confronted with the dismal

fact that American education is far from meeting its moral obligation to educate each child to his optimum level.

b. Large city systems are not identifying a sizable number of their gifted, but when they do, separate class arrangements are the most popular instructional approach.

c. The LCMS and "other" areas are not reporting as high a percentage of gifted students as the large cities (Table 2).

d. Educational provisions at the elementary school level consist primarily of individualized instruction by regular class teachers and specialized personnel. As expected, separate class arrangement at the secondary school level for all geographical areas is the predominate instructional approach.

There is little doubt that this nation must exercise its ability to educate each gifted child to the extent of his ability. No nation, if it is to cope with the awesome problems confronting us today, can afford to ignore and thereby lose the abilities of individuals who would be likely to make significant contributions to the solution of those problems.

The social and political development of this nation often has been viewed as an attempt to balance egalitarianism and individuality. In terms of the purpose of an educational system, both of these factors are also necessary. In this context, however, the egalitarianism is expressed as an equal opportunity for each person to develop and express his own individuality. Equality of opportunity does not necessarily imply that exactly the same opportunities are required by all. Contemporary educational rhetoric often misses the subtle distinction between a school system providing an equal opportunity for each student to develop his own particular potential and a school system providing the same curriculum and the same teaching methodology for all students regardless of individual needs. In practice, there must be distinctions, as there in many cases, in the upgraded arrangement, elementary and secondary school levels, middle school arrangement, expectancy achievement charts, different approaches to teaching, recognition of the learner's style, basal reading texts, advanced placement, etc. The list could be expanded further, but the dictum is always the same: to ensure raising the level of human potential for the common good, the primary function of education must be to enhance the abilities of each individual student. Gifted students should not be considered to be the sole exception to this rule.

COMMENTARY ON THE SCHOOL STAFFING SURVEY

A Report to the U. S. Office of Education
Mrs. Jane C. Williams, Project Officer

by

Sol Tannenbaum, Consultant
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The most dramatic statement contained in the tables is that the great bulk of U. S. public schools fail to identify "gifted" pupils (particularly remarkable considering the nebulousness of the term). This must reveal something about the social organization of schools rather than about the competence of their student bodies. However if this datum is left by itself, the reverse is implied. Something more needs to be said about schools which do not identify gifted pupils. Some recommendations on this point appear later in this report.

The second observation drawn from the tables is the relative lack of special programming for gifted children even when they are identified. The presentation of the appropriate data is somewhat misleading because utilization of duplicated counts inflates the number of schools apparently involved in programming. The same school is being counted more than once. Unduplicated counts are not only more accurate but provide the basis for typifying schools. Also, the use of means or average ratios is misleading in that they do not describe actual schools. Rather they contrive a fictional "national school." What is needed is a typology of schools whose characteristics may be more intensively explored. Incidentally, the use of the term "ratio" in several titles of tables is misleading. The values are actually means. For example, instead of "Pupil Staff ratio for mentally gifted pupils receiving individualized special instruction from specialized Professionals," I would substitute, "Mean number of mentally gifted pupils receiving special instruction from each specialized professional."

I recommend the following statistical explorations for which all data are available from responses to Form Y of the School Staffing Survey:

- A comparison should be made between schools that do not identify gifted pupils and those that do. For example, all responding school officials were queried about identification and handling of students with 10 other classes of needs. A scale may be constructed of the extent to which schools recognize and deal with these problems. Cross-tabulation of the latter index with whether these schools also recognized gifted pupils provides a more comprehensive picture of these schools. There are additional items available from Form Y for comparison, e.g., the racial composition and socioeconomic status of the student bodies. A comparison could be made of schools that identify gifted pupils according to their response to the needs of the pupils, e.g., those which do nothing, those which offer special instruction in regular classes, those which elaborate tracking programs or provide specialized personnel. This is why an unduplicated count of processing in the schools is required. Again,

these types of schools may be compared on other data provided in Form Y, to obtain a more detailed picture of the context in which the response to gifted pupils takes place.

- The table showing the number of schools that identified gifted pupils within specific ranges (e.g., 1-9, 10-19, etc.) is perhaps the most useful table in the set for purposes of future exploration. For example, the table may be contracted into four categories—1-9, 10-19, 20-59, 60 and above. This divides the schools essentially into quartiles. Each quartile may now be classified by the form of programming as described earlier. The information contained in the resulting table repeats more accurately what was attempted in the tables on means and ratios. The resultant typology is also useful for additional explorations.

I have constructed a crude typology for the study of the response by public schools to gifted pupils: (1) those which do not identify any; (2) those which identify some gifted pupils but do nothing about meeting their needs; (3) those which identify some but confine instruction to the regular classes; (4) those which identify some and elaborate programming beyond the regular classes; (5) those which identify 1-9, 10-19, 20-59, 60 and above; and (6) those within these levels which adopt one or another form of programming. Form Y would seem to provide rich material to throw some light on these types of schools.

RESEARCH DATA ON THE NEED FOR DIFFERENTIATED EDUCATION FOR THE GIFTED

A Report to Operations Research, Inc.
Peter M. Plantec, Project Coordinator
by
Virgil S. Ward, Consultant
University of Virginia

OUTLINE

I. Introduction: Nature of the Report

II. The Problem Area: Structure of the Field of Differentiated Education for the Gifted

III. Research Methodology in re Available Data Sources

IV. Analysis of School Staffing Survey Data: Item 12, A-M

V. Summary and Conclusions

I. INTRODUCTION: NATURE OF THE REPORT

This report is submitted by one of two consultants retained by ORI for background in the field of education for the gifted, the input of staff and at least one additional consultant on data analysis being acknowledged and reflected herein, although responsibility for the observations per se is assumed by the writer. Two group discussions were held with staff and other consultants, beyond the initial briefing from USOE which both consultants on the gifted were privileged to have.

The approach used in this report reflects the author's preference in professional matters. First, all available information is considered, this being compounded into general perspectives. From that vantage point, the narrative moves to particulars. This explanation,it is hoped,will buy some patience on the part of others who approach problems differently, expecially their indulgence of sections prior to Section IV, which does engage in particular observations of a sort.

In view of their own intra-agency studies, consultants largely in concurrence, the latest commission (charge) to consultants was to concentrate on relevant portions of one available source of data, the School Staffing Survey (Office of Education, March 31, 1970) as being possibly the most fruitful of available sources.

The present investigator is pleased to acknowledge with appreciation the helpful sharing of insights and observations on the part of all persons indicated above, with especial acknowledgement of the courtesy of Dr. Louis A. Fliegler for his generous prior sharing of written observations made independently on his part. This investigator is pleased to submit principal concurrence with Dr. Fliegler's notes, and to submit that his kind of study made it possible for the present writer to depend on that as a starting point for his own critique.

II. THE PROBLEM AREA: STRUCTURE OF THE FIELD OF DIFFERENTIATED EDUCATION FOR THE GIFTED

The problem of identifying the nature and variety of needs which gifted and talented children have for differentiated educational experience, a pattern of instructional and adjunctive services commensurate with their demonstrably superior capabilities for learning and performing, is a multi-faceted one. Of a sizable number of approaches to the problem, and a still more numerous series of categories into which the problem may usefully be divided, the purposes of the present report suggest emphasis upon two of the broader possibilities of this nature: (a) that of "science," the summary generalizations of a half century or more of research and insightful observation ranging across the full spectrum of inquiry relevant to the problem in its broadest dimensions; and (b) that of "status surveys," in which the ad hoc need for specific (or comprehensive) information prescribes the nature of the inquiry, including the target population through which the information is sought.

Perhaps the conceptual discrimination most generic to these two approaches and needs is that the first research is toward useful conceptualizations and dependable knowledge about the nature of the person(s) differentially identified, and the nature of those extraordinary provisions which seem to be essential to the optimum development of these extraordinarily endowed individuals; and the second research is toward the factual reports, attitudes, or opinions of responsible persons with respect to the (a) existence of the "science" in their particular area or institution, and (b) estimates of various kinds as to further needs from within the general body of concepts and practices identified within the science of the field.

Scientific inquiry leads to dependable information of specific kinds, such as policy within local schools or districts; demographic characteristics (usually the number of targeted youth who exist, or are thought to exist in

general and in accord with carefully constructed definitions and normative statistics); provisions which do and do not serve the purposes intended (and many do not, unfortunately); the nature of professional services essential to the task of differentiated education for the gifted (DEG), and the proper training for the respective tasks; costs; etc. Specific or comprehensive status surveys, ad hoc, or pointed, in nature (the present OE inquiry being such) may focus upon any one or more of these kinds of specifics.

The important functional concept subsumptively powerful in all instrument construction and data analysis, is that the proper substance of science, on one hand, not be confused with the proper substance of field status. The former accumulates slowly through the efforts of highly specialized research personnel and theoreticians; the latter is quite tentative and subject to fluctuation (as witness opinion polls in politics, and the changes in the numbers of schools offering given provisions for handicapped children, once supporting funds are available). Careless analysis, as will be detailed further in the next section on "Methodology," through which these respective planes of inquiry are confused or improperly related (i.e., in which reported needs, as perceived by persons without specific training in the field, are mistaken for factual estimates as to actual needs) can be the starting point for the kinds of chaos and wastage that have led to the present upsurge of demands for rigorous evaluation and accountability.

A few selected illustrations of these prior conditions, in terms of logic and language, will suffice to make clear the possibility of such confusions:

Definition

Prescriptors should be meticulously formulated, so as to include all epistemological requisites, and invariably used thereafter, save where the methodological purpose of testing the initial concept is involved. Definitions in the various sources here were not so used.

Program. This term can be used both to apply to legislative support provisions of one or another kind, and to educational provisions. To use the term (see several places in ORI progress reports) without delimiting adjectives can affect thought, understanding, and responses on research instruments. Similarly important is the rigorous distinction between "program" as a coordinated package of provisions, all essential to the whole task, as distinct from one such provision, feature, or practice, often improperly referred to as a "program."

Individualization of Instruction. This terminology is not adequately defined (see Fliegler's comments). The problem is consequential.

Identification. Demographic data that are dependable require prior processing. School personnel must understand the way gifted youth think and behave, so that they can appreciate these students' need for over and beyond (differential) provisions, and (for economy and accountability) invoke the specialized professional services (school psychologists, counselors, etc.) essential to setting up identification procedures. Without these prior steps, information

supplied is merely "information" supplied, that is, essentially useless or misleading.

Full-time Equivalent Staff Time. This concept seems largely meaningless on a number of counts.

III. RESEARCH METHODOLOGY

The restriction that data be obtained from existing sources insofar as possible is certainly understandable in view of the numbers of unjustifiable replications spawned in all quarters; however, the restriction also was the source of a number of difficulties in obtaining dependable information specifically relevant to the problem of the educational needs of gifted children.

1. The differences noted in Section I between science and status quo is invoked in the first observation. Certain information completely valid in nature and completely relevant to the OE's need in respect to giftedness is available as a result of the cumulative, residual body of known conditions, representing a half century or more of research and insightful observations on the part of numerous scholars and scientists. This is the kind of information found in encyclopedias, textbooks, and research monographs (and this kind of information is the proper source of definitions, conceptualizations representing the "structure" of knowledge, or of disciplines or problem areas. That is, the intellectual overplay within a given problem field is a necessary (and a dependable) starting point for empirical inquiry. Hence, to refer to empirical surveys for definitions is improper at base. The definitions used in any inquiry should be conventional ones, these conventions being the subject of recorded literature in the field.

The various data sources available encounter this difficulty at once. The differences from one source to another, in definitions, in the categorization of educational provisions of a differential nature, etc., have doubtless been part of the reason why ORI staff, following earnest study, had to lay aside certain sources on the score of their specific validity for present purpose, this not affecting in any way their validity for the original purpose.

2. The variations as well as in purpose, instrumentation (essentially related to purpose), and timing (because status changes with time more than does science) make for further difficulties in using discrete sources of data.

3. From the respondent's viewpoint, instruments that do not conform to the requirements of internal logic within a specific problem context are confusing, and the absence of properly paralleled alternatives for response encourage certain irrationality, abandon, in the forced nature of improper alternatives. The comprehensiveness parameter is likewise involved; i.e., if a sufficient range of alternatives is not offered (often the case in general instruments) there may be a significant loss of information. It is to include an adequate selection of alternatives, as manifest in the ORI instrument prepared for the target group of (in Kirsch's terminology) "concerned professionals."

Specific Difficulties

4. (a) The data limitations, some 50% only of schools reporting the presence of any gifted students at all, are sufficient to represent a number of the above methodological difficulties. The 50% figure is completely untrustworthy as "science"; i.e., it cannot be admitted rationally as a de facto picture of existing reality, but rather instead of this improper possible inference (proper recourse being dictionary, textbook, monograph), it leads more properly to the inference that the respondents themselves lack a sufficient body of understanding to make their information relevant. Reports from the field, in respect of status quo, therefore demand the prior condition that respondents understand. School personnel in general do not necessarily understand the quite abstract and complex concepts required by the outreach toward the education of youngsters of superior ability. The further training of such persons thus becomes a focus of activity needed in order to fill the need, not a source for identifying the need.

5. Certain delimited, technical, specialized terminology prohibits cross comparisons among data. The term (for instance) as used in Project TALENT must be considered potentially a different semantic entity from even the same phrase used in another instrument and another context. Only context and rigorous use of words and operationalized concepts can structure (delimit) meanings to the point of sufficient identity for comparability.

6. Language and logic in general are indigenous to the purposes of the inquiry, and affect all ensuing processes, instrument construction, data organization, to data analysis and interpretation, conclusions.

Repeat: Difficulties of these kinds make it questionable that varied data sources be compared (save to test each particular set, commonality being meaningful or more likely so, dissonance to any degree being sufficient for discard), no matter how economical in time or money to "use existing data."

IV. ANALYSIS OF SCHOOL STAFFING SURVEY DATA: ITEM 12, A-M

1. One should be suspect of data in which prior responses serve then to delimit the population responding subsequently. It is unfortunate that successive delimitations increasingly narrow the number of respondents, as where instruction provided in schools other than that of the respondent, and the number of identified gifted youth not included in the already reported special provisions that exist. Such fragmentation, derivation from derivation, characteristically involves at each successive step increasing problems of validity and reliability, unless all prior inquiries (items) are meticulously couched, completely clear, so that the eliminations are proper. This scarcely is true in the various portions of the SSS, 12, in re giftedness, although this observation is not intended as a general criticism of the broad survey in view of its own indigenous purposes.

OBSERVATIONS ON THE ITEMS PER SE

2. Items A, with B and C, are structured so as to be useful here for the ORI analysis. D, on the other hand, leads astray, or must be suspected of possibly doing so, in that the reporting school itself, likely to be among the best in the district, will be excluded from the total number reported as "going elsewhere." Also, an occasional visit to a common center might throw a respondent into one or another response bracket. Thus, this sequentially delimited item is suspect.

At this point, between D and E, the fact becomes significant in response patterns, that no alternatives to "instruction in separate classes" are offered as choices. The improper exclusion of practices/provisions fully acceptable and parallel (which would be built into a specific, ad hoc inquiry on giftedness, as witness the ORI "concerned professionals" questionnaire) artificially or spuriously

forces an unknowable number of respondents to choose yea or nay to the single choice available.

Item E, number professionals involved in full time special classes, is adequate, answerable; but the concept in F, again fractionalized, is so subject to variable interpretations as to provide data that are meaningless and hence misleading in summary and in inference. Item G is meaningless, as witness again the Fliegler observation noted above. Items H, I and J, while they may have suited the general purposes (staffing) of the original survey, do not permit reliable responses for the present delimited purpose (status survey on DEG specifically). Items K and L are similarly useless. Item M is valid and useful, provided the report (summary and interpretation) holds rigorously to the differences noted above between science and fact on one hand, and perceptions (likely to be misperceptions) reported by respondents whose sophistication (qualifications) cannot be documented.

Even Item M has a potential weakness, this being an inquiry after "total number" as distinct from a percentage of total population. A given number of gifted reported, say 25, may be from a school population of 1,000, or of 100, with critical differences in percentages obtaining. To pick up total numbers, as had to be done here through Table 6 (3-22-71 revision) involving a question from another segment, possible different connotation or context, of the SSS instrument, involves this consultant's antipathy to derivative figures. Table 4, assuming accurate composition from different specific data sources, is a useful empirical fact to compare with the statistical expectancies existing in the literature (science), although again one wishes question 20, Y, were from the same "set" in the instrument (with 12). Altogether, the percentages reporting one but less than 9% provide a useful comparison with research generalizations and policy on the part of qualified persons as to definition and distribution (i.e. some 3% intellectually high enough to be considered gifted; additional categories in similar quantities, if reliably excluded, totaling to 10% or 12%).

3. Analysis of Tables I-VII (1-7), 3-22-71 revision). Some comments on tables are included in (2), just above. Tables B.1, B.2 are useful and valid in that the SSS instrument was designed to get at this exact kind of information. Table I (reflect Fliegler's exasperation at inconsistency in table designations) is all right— repeat as report, but not as fact— further commentary is given in (4) below. Table 2, see above comment. Table 3 (prior comment) is probably useful in summary. Table 4, as indicated above, seems about right according to expectancy, although this consultant would have to speculate upon its being a case of right facts arrived at the wrong way. Of all the elaborate Table 5, two figures seem principally useful, and only these: 30.9% and 48.5%.

Item 12, I (repeated in the 3-25-71 communication, revised tables), illustrates the need for meticulous language commented upon in various places herein, the apparently innocuous word "regularly" possessing enough vectorial quality to deflect answers from one alternative to another; sophisticated respondents likely to read more into the term than do the unsophisticated.

Table 6 is virtually worthless, except, like a wrong hand signal from a car, possibly worse than no information.

Table 7 is not useful, invalid. It may have yielded usable information on staffing; in that context it would have lent to the vectorial set in respondents, but this is not likely to be true for the ad hoc purpose of personnel deployment in re gifted students.

4. The above comments suggest that a hierarchy of data and tabulations can be formed, thus: category I— information valid and useful for present purpose; category II— limited usefulness; category III— invalid for present purpose. Unfortunately the third category is largest.

V. SUMMARY AND CONCLUSIONS

1. Over-expectation of Available Data Sources. It is a not infrequent hope on the part of men concerned with economy and accountability that science be more generalizable than segments of it seem to be. The lure of using present data, rather than engaging in the costly and laborious task of accumulating more, has resulted in making the present effort, like others, largely misguided. This does not say, however, that no useful information has been found; rather it urges that further information, meticulously sought in accordance with this specific problem, be sought as time and conditions permit.

2. The available data sources proved, it seems, to be largely confined to the kinds of information needed for administrative purposes, and for some aspects of policy making, i.e., mainly demographic and status quo data as to provisions. The problem of giftedness, in its essential nature, virtually begins with those so identified, the consequential information relating to need being in the nature of cognitive and affective processes within persons, then multiplied by proper numbers. This is to say that the problem of need, typically thought of in terms of numbers of persons identifiable with any degree of categorical need, exists more substantially in terms of the nature of the needs per se, and the consequences when the needs go unmet. Available data sources, thus, were largely less than sufficient.

3. On the other hand, considerable information, completely relevant to the problem of providing for special education of gifted children, exists in forms other than the favored empirical "data banks." Remarks in this report concerning the nature of science as an embodiment of research findings in essential form (Cf. the Berelson and Steiner title: Human Behavior: An Analysis of Scientific Findings, 1964), completely relevant to the present Office of Education need, are an invitation (to ORI) to point out this fact. Happily, certain Office of Education staff are knowledgeable of such further resources, have contributed to this

"science" in fact, and need but to be freed to bring it into play. Meanwhile both the Office of Education and ORI are to be commended on their deliberate search for the expertise of outside consultants and on the provisions made for utilizing that expertise. Parallel studies, as well, (e.g., the study that is understood to be in progress in which an analysis of the regional hearings is being made), can contribute with the present ORI study, fuller relevant information.

4. The present consultant is impressed with the progress reports made by ORI, two of which (September 1970, February 1971) have come to his attention. The initial approaches toward available data, the diligent study and evaluation of these, the careful winnowing out of the most useful of such resources — all this, plus the creative ORI staff contributions represented in the listing of problems and facets of the inquiry (this largely obviating the "taxonomy of the problem field" urged at one time by the present writer) comprises a commendable intermediate process. All this with (still particularly) ORI's designs and charts (February report), apparently in the best tradition of systems analysis, promises a final product (report) as related to initial charge, which should be substantially relevant and functionally applicable to the problem as it now stands.

5. A vast amount of additional information, as is suggested at various points in the present critique, needs to be sought out. The constructed questionnaire (ORI, Commissioner's signature) will help in this connection, help considerably in fact; but this should more nearly be considered a point of departure (hastily drawn up as was necessary) for further proper instruments to pinpoint in more exacting fashion the various echelons of information needed. Such further studies, if one might look forward with hope toward supportive legislation and financial allocation, might well be among the first kinds of studies made, serving to pull together that body of residual science referred to herein, and comprising an essential prior condition for educational practice in local schools, which therefore will more likely at last be accountable.